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Original Research

Evaluation of knowledge regarding gestational diabetes mellitus: a Bangladeshi study



B. Bhowmik ^{a,b,*}, F. Afsana ^c, T. Ahmed ^c, T. Siddiquee ^b, T. Ahmed ^c,
F. Pathan ^c, H. Mahtab ^c, A.K.A. Khan ^b

^a Institute of Health and Society, Faculty of Medicine, University of Oslo, Oslo 0318, Norway

^b Centre for Global Health Research, Diabetic Association of Bangladesh, Dhaka 1000, Bangladesh

^c Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders, Dhaka 1000, Bangladesh

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ABSTRACT

Objective: The aim of this study was to evaluate the level of knowledge about gestational diabetes mellitus (GDM) in Bangladeshi people.

Study design: Cross-sectional study.

Methods: This study involving 1374 participants was conducted in 15 outpatient clinics of Diabetic Association of Bangladesh and its affiliated associations, Bangabandhu Sheikh Mujib Medical University and four medical college hospitals in Bangladesh from August 2015 to December 2015. A pretested interviewer-administered questionnaire was used to obtain information related to sociodemographic status, level of education, types of profession, and medical history. The questionnaire included eight questions on GDM. Level of knowledge (mean \pm 1 standard deviation [SD]) was categorized as poor, average, and good. Descriptive, Chi-squared, and regression analysis were performed to express the results.

Results: Of total knowledge score of 8, participants' mean knowledge score (\pm SD) was 2.7 ± 1.5 . The levels of good, average, and poor knowledge were 26.3%, 63.1%, and 10.6%, respectively. In multivariate analysis, participants aged below 30 years ($P < 0.001$), male gender ($P < 0.001$), high-income group ($P < 0.001$), having university education ($P < 0.001$), health professionals ($P < 0.001$), capital Dhaka city residents ($P < 0.001$), those with family history of diabetes ($P = 0.007$), and participants with diabetes ($P = 0.007$) were found to be significantly associated with the good knowledge score.

Conclusions: Participants in this study had average knowledge about GDM. New innovative strategies should be developed to improve the knowledge of GDM among health professionals and general population.

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* Corresponding author. Centre for Global Health Research, Diabetic Association of Bangladesh, 122 Kazi Nazrul Islam Avenue, Shahbag, Dhaka 1000, Bangladesh. Tel.: +880 2 9677772; fax: +880 2 9677772.

E-mail address: doctorbiplot@yahoo.com (B. Bhowmik).

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Introduction

Prevalence of gestational diabetes mellitus (GDM) is increasing all over the world along with type 2 diabetes (T2DM). According to 7th International Diabetes Federation Diabetes Atlas in 2015, 20.9 million (16.2%) live births were affected with hyperglycemia in pregnancy, and an estimated 85.1% of those cases were because of GDM.¹ The history of abortion, neonatal death, and stillbirth was found higher in GDM mothers. GDM mothers and their infants are also at risk of developing T2DM and related cardiometabolic diseases in the future.^{2,3} Local studies show that prevalence rates of GDM were between 6% and 14% in Bangladesh.^{4,5} Maternal and fetal perinatal mortality was also high among GDM mothers in Bangladesh.⁵

A study has shown that timely and adequate treatment of maternal hyperglycemia reduces the risk of GDM mothers to the risk level of normal pregnancy.⁷ Therefore, it is important to understand how and when women with GDM should be screened and subsequently managed. Still, there are no universally accepted guidelines for screening and management of GDM.⁸ In developing and underdeveloped countries, the majority of GDM cases remain undetected, and many are detected during the first antenatal checkup and even later during pregnancy. Recent studies have shown that proper diagnosis and management of GDM provide a window of opportunity for the prevention of diabetes,^{9–11} and knowledge on GDM will help to prevent it and its complications.

Studies conducted in India, Malaysia, and Australia have assessed the level of knowledge of pregnant women on GDM, and the evidence indicates a lack in their knowledge.^{12–15} Not only that, studies also reported poor awareness and knowledge about GDM among health professionals.^{16,17} Evidence indicates that along with community awareness, healthcare professionals should also be trained in the identification, treatment, management, and follow-up of GDM to minimize untoward consequences of GDM. Several studies have evaluated knowledge and awareness among T2DM patients in Bangladesh;^{18–21} however, the knowledge among pregnant women about GDM is also limited. In Bangladesh, there is also a lack of evidence of the level of knowledge of GDM among healthcare professionals. This study, therefore, is aimed to evaluate the level of knowledge about GDM among Bangladeshi people, including both health professionals and the general population.

Methods

Study design

The current cross-sectional study is part of a joint program of Diabetic Association of Bangladesh (BADAS) and South Asian Federation of Endocrine Societies for creating community awareness about GDM in Bangladesh. The study was conducted over a period of 5 months from August 2015 to December 2015 in 20 centers located inside and outside the capital city of Bangladesh, Dhaka. The study is reported in compliance with the strengthening the reporting of

observational studies in epidemiology (STROBE) guidelines for observational research.²²

Study location and participants

Five central institutes of BADAS, including an outpatient clinic of Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders; four outpatient clinics of National Healthcare Network, an enterprise of BADAS located in Mirpur, Wari, Dhanmondi, and Shantinogor areas of Dhaka city; and outpatient clinics of seven affiliated associations (AAs), namely Chittagong, Sylhet, Barisal, Dinajpur, Khulna, Mymensingh, and Rajshahi Diabetic Association from seven administrative divisions of Bangladesh were selected for this study. Along with BADAS and its AAs, the endocrine and diabetes unit of Bangabandhu Sheikh Mujib Medical University and an other four medical college hospitals, namely Dhaka Medical College, Sir Salimullah Medical College, Rangpur Medical College, and Mymensingh Medical College, were also selected for this study. A total of 1500 individuals (75 participants from each center) were conveniently selected, and among them 1374 (91.6%) participated in the study.

Sampling method

A purposive sampling method was adopted in which both care recipients, including patients and their relatives, and health professionals, including physicians and nurses working at these centers and hospitals, were invited to participate in the study. One trained researcher from each center was responsible for administering the questionnaires. The completed questionnaires were collected from the participants on the same day. Participation in the study was voluntary. Both verbal and written consents were obtained from all participants after explaining the rationale of the study. The inclusion criteria of the participants were as follows: (i) age ≥ 18 years; (ii) willing to participate; and (iii) providing informed consent.

Questionnaire and data collection

Before the investigation, a panel of experts agreed on a structured questionnaire after thorough discussions. The panel included an endocrinologist, a diabetologist, a gynecologist, and a public health researcher. Each of the questions asked was developed from clinical practice and was selected from the most concern issues associated with GDM. The questionnaire was developed in the local language of Bangla, and pretesting of the questionnaire was performed to gather information on its understandability, time consumed for filling out the questionnaire, consistency, and acceptability among related variables. A few minor modifications were made after the pilot testing. Data were collected by trained investigators after face-to-face interviews with the participants. The first part of the questionnaire collected socio-demographic information. The second part included eight questions to assess the knowledge regarding GDM. [Table 1](#) shows a partial set of questions (English version) used for the survey. Knowledge on risk factors for GDM, risk of GDM

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